TREATMENT OF METAL SUBSTRATA WITH (PER)FLUOROPOLYETHER COMPOUNDS

ABSTRACT

Use in the treatment of metal substrata and their alloys, of mono- and bifunctional (per)fluoropolyether compounds having the following structures:

$[R_f\text{-}CFY\text{-}L\text{-}O]_mP(O)(O^-Z^+)_{3-m}$ (A)

$(O^-Z^+)_2P(O)[O\text{-}L\text{-}YFC\text{-}O\text{-}R_f\text{-}CFY\text{-}L\text{-}O\text{-}P(O)(O^-Z^+)]_{m'}\text{-}$

$\text{-}[O\text{-}L\text{-}YFC\text{-}O\text{-}R_f\text{-}CFY\text{-}L\text{-}O]P(O)(O^-Z^+)_2$ (B)

$R_f\text{-}CFY\text{-}L\text{-}W$ (C)

$W\text{-}L\text{-}YFC\text{-}O\text{-}R_f\text{-}CFY\text{-}L\text{-}W$ (D)

wherein: $m' = 0\text{-}20$; $n = 0\text{-}8$; $q = 1\text{-}8$; L is an organic group selected from $\text{-}CH_2\text{-}(OCH_2CH_2)_n\text{-}$, $\text{-}CO\text{-}NR'\text{-}(CH_2)_q\text{-}$, with $R' = H$ or $C_1\text{-}C_4$ alkyl;

$Z = H$, alkaline metal or NR_4 group with $R = H$ or $C_1\text{-}C_4$ alkyl;

$Y = F$, CF_3; $m = 1, 2, 3$, preferably 1, 2;

W is a group $\text{-}Si(R_1)_\alpha(OR_2)_{3-\alpha}$ with $\alpha = 0, 1, 2$, R_1 and R_2 equal to or different from each other are $C_1\text{-}C_6$ alkyl groups optionally containing one or more ether O, $C_6\text{-}C_{10}$ aryl groups, $C_7\text{-}C_{12}$ alkyl-aryl or aryl-alkyl groups;

Rf is a perfluoropolyether chain comprising the following units: $(CFXO)$, (CF_2CF_2O), $(CF_2CF_2CF_2O)$, $(CF_2CF_2CF_2CF_2O)$, $(CR_4R_5CF_2CF_2O)$, $(CF(CF_3)CF_2O)$, $(CF_2CF(CF_3)O)$.